

I claim:

1. A process for treating a composition comprising unembrittled PET components and contaminants to remove the contaminants therefrom comprising :

5 (a) mixing ethanediol with the composition at a temperature about the boiling point of ethanediol and for a time period sufficient to convert the polyethylene terephthalate components to polyethylene terephthalate polymers which are soluble in the ethanediol and form bis(hydroxyethyl) terephthalate and produce a product mixture thereof with insoluble materials;

10 (b) recovering the soluble polyethylene terephthalate polymers, bis(hydroxyethyl) terephthalate and ethanediol from the mixture.

2. The process of claim 1 wherein the soluble polyethylene terephthalate polymers and ethanediol are recovered from the product mixture by filtration.

3. The process of claim 2 wherein the filtration is high pressure filtration.

4. The process of claim 2 wherein a material selected from the group consisting of activated carbon and mixtures of activated carbon and activated clay is added to the product mixture prior to filtration.

5. A process for treating a composition comprising unembrittled polyethylene terephthalate components and contaminants to remove the contaminants therefrom comprising:

(a) reacting the embrittled polyethylene terephthalate components with ethanediol at a temperature at or about the boiling point of ethanediol for a period of time sufficient to transesterify the polyethylene terephthalate components and form a solution containing products selected from the group consisting of soluble polyethylene terephthalate polymers, bis (hydroxy ethyl) terephthalate ester and mixtures thereof;

- (b) recovering the products from the solution; and
- (c) treating the recovered product at a pressure and temperature and for a period of time sufficient to hydrolyze the recovered products and produce an ethanediol solution and crystals of terephthalic acid.

6. The process of claim 5 wherein the products are recovered from the solution by filtration.

7. The process of claim 6 wherein a material selected from the group consisting of activated carbon and mixtures of activated carbon and activated clay is added to the product mixture prior to filtration.

8. The process of claim 5 wherein the products are recovered by density separation.

9. A process for treating a composition comprising unembrittled polyethylene terephthalate components and contaminants to remove the contaminants therefrom comprising:

(a) reacting the polyethylene terephthalate components with ethanediol at a temperature at or about the boiling point of ethanediol for a period of time sufficient to transesterify the polyethylene terephthalate components and form a product mixture containing embrittled polyethylene terephthalate;

(b) crushing the product mixture to produce a crushed portion containing polyethylene terephthalate and an uncrushed portions and separating the crushed and uncrushed portions;

(c) treating the crushed portion at a pressure and temperature and for a period of time sufficient to hydrolyze the polyethylene terephthalate therein and produce a solution of ethanediol and crystals of terephthalic acid therein;

(d) heating the thus obtained at a temperature at or about the boiling point of ethanediol for a period of time sufficient to form a product solution containing products selected from the group consisting of soluble polyethylene terephthalate polymers, bis (hydroxy ethyl) terephthalate ester and mixtures thereof; and

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(e) recovering the soluble polyethylene terephthalate polymers, and bis (hydroxy ethyl) terephthalate ester from the product solution.

10. The contaminant free composition obtained from the process of claim 1.
- 10 11. The contaminant free composition obtained from the process of claim 2
12. The contaminant free composition obtained from the process of claim 3.
13. The contaminant free composition obtained from the process of claim 4.
14. The contaminant free composition obtained from the process of claim 5.
15. The contaminant free composition obtained from the process of claim 6.
- 15 17. The contaminant free composition obtained from the process of claim 7.
18. The contaminant free composition obtained from the process of claim 8.
19. The contaminant free composition obtained from the process of claim 9.